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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,421	12/03/2003	Tsuyoshi Onuma	117940	4772

25944 7590 06/28/2004

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EXAMINER

RICKMAN, HOLLY C

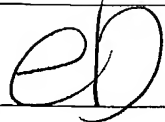
ART UNIT

PAPER NUMBER

1773

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 10/725,421	<b>Applicant(s)</b> ONUMA ET AL. 	
	<b>Examiner</b> Holly Rickman	<b>Art Unit</b> 1773	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/4/04</u> . | 6) <input type="checkbox"/> Other: ____  |

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 is rendered indefinite by the use of the phrase "magnetoresistance effect type." The addition of the word "type" to an otherwise definite expression extends the scope of the expression so as to render it indefinite. *Ex parte Copenhagen*, 109 USPQ 118 (Bd. App. 1955).

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maesaka et al. (US 6596418) in view of Kubota et al. (US 2002/0058159).

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Maesaka et al. teach a magnetic recording medium having a substrate, a soft magnetic layer, a PtBO base layer (corresponds to claimed "seed" layer), and an artificial lattice formed from alternating layers of CoBO and PtBO. The reference teaches that the Co alloy and Pd alloy layers are 0.4 nm and 0.6 nm thick, respectively (col. 3, lines 25-32). The reference teaches that the amount of B in the artificial lattice is 15 at.% at the maximum (col. 3, lines 50-52). The reference teaches that the B content in the seed or base layer is preferably 30 at% at the maximum (col. 4, lines 34-36). The base layer is as thin as 1 nm (col. 5, lines 42-44). Maesaka et al. also teach the use of the magnetic recording medium coupled with a magnetoresistive head to form a recording apparatus (col. 6, lines 21-30).

Maesaka et al. teaches the use of several different materials for the soft magnetic layer (i.e., NiFe, CoZr, FeN, NiFeTa, "and the like" – see col. 5, lines 51-53). The reference is silent with respect to the use of a soft magnetic layer containing B and at least one of Ni, Fe, and Co.

Kubota et al. disclose a magnetic recording medium having a soft magnetic underlayer and an artificial lattice recording structure thereon with an intermediate layer in between. The reference teaches that it is known in the art to use soft magnetic materials such as NiFe, CoZrNb and FeAlN. However, the reference teaches that these materials increase medium noise. In order to address this problem; Kubota et al. propose the use of a FeCoB alloy containing 10 at% boron (see paragraphs 4-5, 11-12 and 32).

It would have been obvious to one of ordinary skill in the art to substitute FeCoB<sub>10</sub> for the NiFe soft magnetic material taught by Maesaka et al. in order to reduce medium noise as suggested by Kubota et al.

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***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2002/0086184, US 2003/0104247, US 2003/0108776, US 6524730, US 6641935, and US 6667118 are cited as art of interest.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J. Thibodeau can be reached on (571) 272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Holly Rickman  
Primary Examiner  
Art Unit 1773

hr  
June 23, 2004